In the Claims

1. (Currently Amended) A method of cooling a low Z target material of a neutron source assembly, comprising ~~the step of~~:

providing, through by using a nozzle, a concentrated flow of ~~circulating~~ liquid gallium ~~past~~ in a direction normal to a non-bombarded surface of the low Z target material to cool the low Z target material.

2. (Currently Amended) The method of claim 1, wherein said step of circulating comprises ~~the steps of~~:

providing a reservoir of liquid gallium; and

pumping the liquid gallium from the reservoir, through the nozzle, to the low Z target material to cool the target material and through a heat exchanger to remove heat from the liquid gallium.

Claim 3 (Cancelled)

4. (Original) The method of claim 2, wherein the target material comprises beryllium.

5. (Currently Amended) A neutron source assembly having a liquid cooled target, comprising:

an accelerator based neutron source including ~~modulator/reflector assembly that includes~~ a low Z target material that is bombarded by accelerated particles to produce a neutron flux; and

a cooling system ~~that~~ to circulates liquid gallium through said ~~modulator/reflector~~ accelerator based neutron source to cool the low Z target material;

said cooling system including a nozzle to provide a concentrated flow of liquid gallium in a direction normal to a non-bombarded surface of the target material.

6. (Currently Amended) The neutron source assembly of claim 5, wherein said cooling system comprises:

a reservoir of liquid gallium;

a heat exchanger in fluid connection with said reservoir of liquid gallium; and

means for circulating said liquid gallium between said reservoir of liquid gallium, said heat exchanger and said ~~modulator/reflector assembly~~ accelerator based neutron source.

7. (Original) The neutron source assembly of claim 6, wherein said means for circulating comprises a pump.

8. (Currently Amended) A liquid cooling system for a neutron source assembly, said cooling system comprising:

a reservoir of liquid gallium;

a heat exchanger in fluid connection with said reservoir of liquid gallium;

a nozzle to provide a concentrated flow of liquid gallium in a direction normal to a non-bombarded surface of a low Z target material within the neutron source assembly; and

means for circulating said liquid gallium between said reservoir of liquid gallium, said heat exchanger and the neutron source assembly to remove heat from a neutron generating low Z target ~~low Z~~ material within the neutron source assembly.